

**Amendments to the Specification:**

Please replace the paragraph beginning on page 7, line 30 with the following amended paragraph:

At step 104, processor 46 receives the measured imaging spectrum data from ADC 44 (see FIG. 7d showing the measured imaging spectrum data of a sample), and retrieves the characteristic spectra for the various fluorescent dyes. At step 106, the measured spectrum is decomposed into the various component dye spectra. This can be accomplished in many different ways. In one embodiment, processor 46 generates a model spectrum from the individual templates, and compares the model spectrum with the actual recorded spectrum. The respective weights of each of the individual templates are then varied to arrive at a close approximation of the actual spectrum. Then, at step 108, processor 46 determines the weights of each dye to quantitate the respective dye intensities.